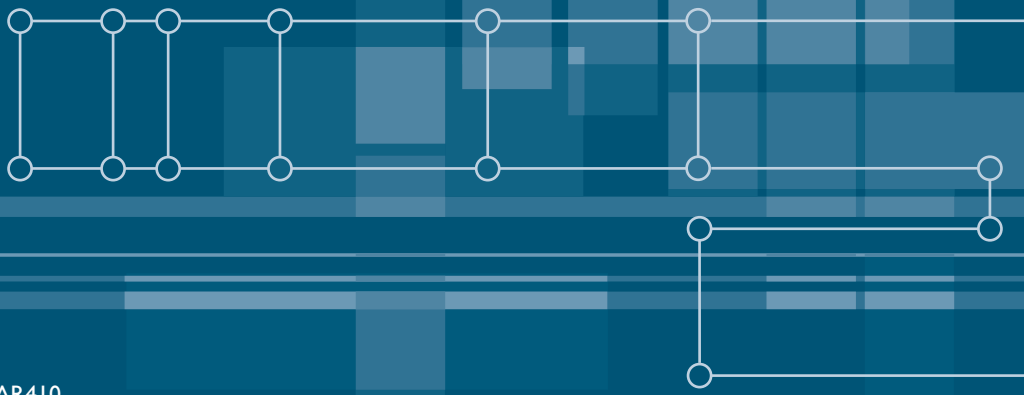
AR400 Series Router
Installation and Safety Guide



AR410
AR410S
AR415S
AR440S
AR441S
AR442S
AR450S

Allied Telesis

AR400 Series Installation and Safety Guide
Document Number 613-000313 Rev B.

Copyright © 2004-2006 Allied Telesis Inc.
19800 North Creek Parkway, Suite 200, Bothell, WA 98011, USA.

All rights reserved. No part of this publication may be reproduced without prior written permission from Allied Telesis.

Allied Telesis Inc. reserves the right to make changes in specifications and other information contained in this document without prior written notice. The information provided herein is subject to change without notice. In no event shall Allied Telesis be liable for any incidental, special, indirect, or consequential damages whatsoever, including but not limited to lost profits, arising out of or related to this manual or the information contained herein, even if Allied Telesis has been advised of, known, or should have known, the possibility of such damages.

All trademarks are the property of their respective owners.

Table of Contents

Electrical Safety Statements 4
Package Contents 5
AR410, AR410S, AR450S Routers 6
Installing the AR410, AR410S and AR450S 6
Configuring the AR410, AR410S, AR450S 8
Connecting Data Cables to AR410, AR410S, AR450S 12
System LEDs on AR410, AR410S, AR450S 13
AR415S Router 14
Installing the AR415S 14
Configuring the AR415S 18
Connecting Data Cables to AR415S 23
System LEDs on AR415S 24
AR440S, AR441S, AR442S Routers 25
Installing the AR440S, AR441S, AR442S 25
Configuring the AR440S, AR441S, AR442S 29
Connecting Data Cables to AR440S, AR441S, AR442S 35
System LEDs on AR440S, AR441S, AR442S 36
Default Configuration on AR415S, AR440S, AR441S, AR442S 37
Documentation and Tools CD-ROM 38
Connection to mains voltage supply 39
Telecommunications Interfaces 39
Safety 41
Sicherheit 42
Sikkerhed 43
Veiligheid 44
Sécurité 45
Turvallisuus 46
Norme di Sicurezza 47
Sikkerhet 48
Segurança 49
Seguridad 50
Säkerhet 51
US Federal Communications Commission (FCC) 52
Canadian Department of Communications 53
Emission Compliance Statements 54
EC Declaration of Conformity 56

Electrical Safety Statements

Electrical Safety
IMPORTANT: This equipment must be installed in accordance with safety precautions ("Safety", page 41).

Elektrische Sicherheit
WICHTIG: Für die Installation dieses Gerätes ist die Einhaltung von Sicherheitsvorkehrungen erforderlich ("Sicherheit", Seite 42).

Elektrisk sikkerhed
VIGTIGT: Dette udstyr skal installeres i overensstemmelse med sikkerhedsadvarslerne ("Sikkerhed", side 43).

Elektrische veiligheid
BELANGRIJK: Dit apparaat moet in overeenstemming met de veiligheidsvoorschriften worden geïnstalleerd ("Veiligheid", pagina 44).

Sécurité électrique
IMPORTANT: Cet équipement doit être utilisé conformément aux instructions de sécurité ("Sécurité", page 45) .

Sähköturvallisuus
TÄRKEÄÄ: Tämä laite on asennettava turvaohjeiden mukaisesti ("Turvallisuus", sivu 46).

Sicurezza elettrica
IMPORTANTE: questa apparecchiatura deve essere installata rispettando le norme di sicurezza ("Norme di Sicurezza", pagina 47).

Elektrisk sikkerhet
VIKTIG: Dette utstyret skal installeres i samsvar med sikkerhetsregler ("Sikkerhet", side 48).

Segurança eléctrica
IMPORTANTE: Este equipamento tem que ser instalado segundo as medidas de precaução de segurança ("Segurança", página 49).

Seguridad eléctrica
IMPORTANTE: La instalación de este equipo deberá llevarse a cabo cumpliendo con las precauciones de seguridad ("Seguridad", página 50).

Elsäkerhet
OBS! Alla nödvändiga försiktighetsåtgärder måste vidtas när denna utrustning används ("Säkerhet", sida 51).

Package Contents

Contact your authorised distributor or reseller if any items are damaged or missing.

Item included for each router	AR410 AR410S AR415S	AR440S AR441S AR442S	AR450S
One AR400 Series router	✔	✔	✔
One AC power cord	✔	✔	✔
One power cord retaining clip	✔	✔	✔
One serial cable for connecting the router to a terminal or PC	✔		
One serial null modem cable for connecting the router to a terminal or PC		✔	✔
Two UTP network cables	✔	✔	✔
One DSL cable AR440S: two in Australia, New Zealand		✔	
One 19 inch rack-mount kit	✔	✔	✔
One *AR400 Series Router Installation and Safety Guide*	✔	✔	✔
One *AR400 Series Router Documentation and Tools CD-ROM* (includes the complete AR400 Series Document Set and utilities)	✔	✔	✔
One warranty card	✔	✔	✔

To install your router, see "AR410, AR410S, AR450S Routers" following, "AR415S Router" on page 14, or "AR440S, AR441S, AR442S Routers" on page 25.

AR410, AR410S, AR450S Routers

This section describes how to install the AR410, AR410S and AR450S routers.

- "Installing the AR410, AR410S and AR450S" below
- "Configuring the AR410, AR410S, AR450S" on page 8
- "Connecting Data Cables to AR410, AR410S, AR450S" on page 12
- "System LEDs on AR410, AR410S, AR450S" on page 13

For corresponding information about installing an AR415S, see "AR415S Router" on page 14.

For corresponding information about installing an AR440S, AR441S or AR442S, see "AR440S, AR441S, AR442S Routers" on page 25.

Installing the AR410, AR410S and AR450S

Selecting a Site

You can install the router:

- on a level surface such as a desktop or bench
- in a standard 19-inch rack, using the rack-mount kit supplied with the router

When you install the router, choose a site that:

- allows adequate airflow around the router and its vents
- is free of dust and moisture
- will maintain ambient temperature in the range 0° C to 40° C (32° F to 104° F) and humidity in the range 5% to 80% non-condensing
- has a reliable and earthed (grounded) power supply, preferably dedicated and filtered
- does not expose cabling to sources of electrical noise such as radio transmitters, broadband amplifiers, power lines, electric motors, and fluorescent fixtures
- allows easy access to the router's power and cable connections

Before Installing the Router

- Read the safety information in "Safety" on page 41.
- Unpack the router. Verify the package contents. If any items are damaged or missing, contact your sales representative.

Installing an Optional PIC

If you purchased an optional PIC for your AR410 or AR410S, install it now by following the *Port Interface Card Quick Install Guide*. The PIC Quick Install Guide can be found with the PIC, on the Documentation and Tools CD-ROM, or can be downloaded from www.alliedtelesyn.com/support/software/.

Installing the Router in a Rack

1. Gather additional items. You will need:
   - the rack-mount kit included in the router package
   - a Phillips #1 screwdriver
   - screws and cage nuts to attach the brackets to your rack
2. Check the rack.

   Ensure that the rack is safely secured and that it will not tip over. Devices in a rack should be installed starting at the bottom, with the heavier devices near the bottom of the rack.

   Ensure the rack has sufficient space for the router and its associated cables. The router is 1U high.
3. Unscrew the feet from the router.
4. Connect the handles to the brackets.

   Screw the handles to the wider side of each bracket, using the supplied screws.
5. Connect the brackets to the router.

   Screw the brackets to the sides of the router, using the supplied screws. The router can be front or rear mounted.
6. Mount the router in the rack.

   Use appropriate rack mounting screws (not supplied).

Applying Power to the Router

1. Check the supply voltage and the router's rated voltage.

   The router is fitted with a universal mains power supply that will function over the range 100-240 VAC and 50–60Hz.

   For continued protection against the risk of fire and shock hazard, replace fuses only with fuses of the same type and rating.

Warning The specific power supply requirements for a particular model are clearly displayed on the rear or underside of the router. If the supply is outside the accepted range for the router, the router may not operate or damage to the router may result.

2. Fit the power cord retaining clip to the AC power inlet on the router's rear panel.

3. Connect the provided power cord to the AC power inlet and clip it in place. Switch the router's power switch to the ON position. The Power LED lights continuously and the System LED lights briefly. The Port LEDs also light briefly.

   The router is supplied with an approved power cord that incorporates a moulded plug. It must only be used with the power cord supplied.

If the LEDs fail to light, the most likely cause is that the router is not receiving power. Check that:

- the power supply outlet's switch (if any), and the router's power switch, are in the ON position
- the power cable is securely plugged in
- the power supply is operational

Configuring the AR410, AR410S, AR450S

You can configure the router via the command line interface (CLI) or the graphical user interface (GUI). First use the CLI to assign an IP address to the router, then use the CLI or the GUI to complete the configuration.

- "Using the CLI to Configure AR410, AR410S, AR450S" below
- "Using the GUI to Configure AR410, AR410S, AR450S" on page 10

Using the CLI to Configure AR410, AR410S, AR450S

This section describes how to access the router's command line interface (CLI) using a terminal or PC connected to the router's console port.

1. **Initiate router start-up.**

   Using the terminal cable supplied, connect a VT100-compatible terminal, or the COM port of a PC running a terminal emulation program such as Windows Hyper Terminal, to the Console RS-232 (ASYN0) port on the router's rear panel.

   Set the communication parameters on your terminal or terminal emulation program to:

   - Baud rate: 9600
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: Hardware

   See the *AR400 Series Router Hardware Reference* for more information on configuring emulation software.

2. Log in and set the password.

The login prompt appears on the terminal or PC. If the login prompt does not appear, press [Enter] two or three times.

When the router boots for the first time it automatically creates an account with manager privileges. The account has the user name "manager" and the password is "friend". Passwords are case sensitive.

At the login prompt, enter the user name and password.

```
Login: manager
Password: friend
```

The router's command prompt appears and you can now configure the router using the command line interface.

Warning Change the password as soon as possible. Leaving the manager account with the default password is a serious security risk. Make sure you remember the new password as there is no way to retrieve it if it is lost.

Use the following command to change the account password:

```
set password
```

3. Configure the router.

See the *AR400 Series Router Software Reference* for more information on router start-up and configuration procedures (including a list of message definitions). To continue configuring the router using the CLI, use the commands in the Software Reference.

To display a list of help topics, enter:

```
help
```

To display help on a specific topic, enter:

```
help topic
```

Alternatively, type a question mark (?) at the end of a partially completed command to see a list of valid options.

4. Save the configuration.

Save your configuration to a new file by using the command:

```
create config=filename.cfg
```

Then set the router to load this file when it restarts by using the command:

```
set config=filename.cfg
```

We recommend leaving the boot.cfg file unchanged, in case you need to revert to the original default configuration.

To continue configuring the router using the GUI, see the following section.

Using the GUI to Configure AR410, AR410S, AR450S

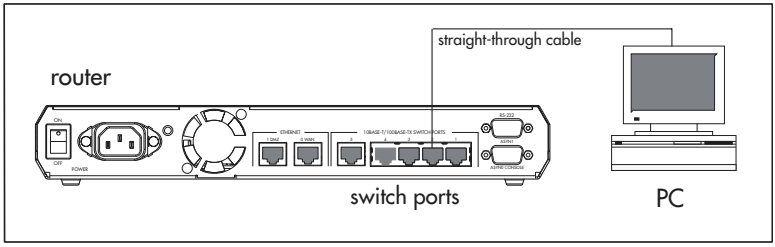
This section describes how to access the GUI via a switch port in VLAN1 on the AR410, AR410S, AR450S routers, when the PC and the router are in the same subnet, in order to configure the router. The router's switch ports all belong to VLAN1 by default.

The GUI requires a PC and web browser. Supported browsers are Internet Explorer 5.0 or later and Netscape 6.2.2 or later, with JavaScript enabled. If you are using a toolbar or plug-in on your browser to block pop-ups, disable it while using the GUI. The GUI displays detailed configuration options and information in pop-up windows.

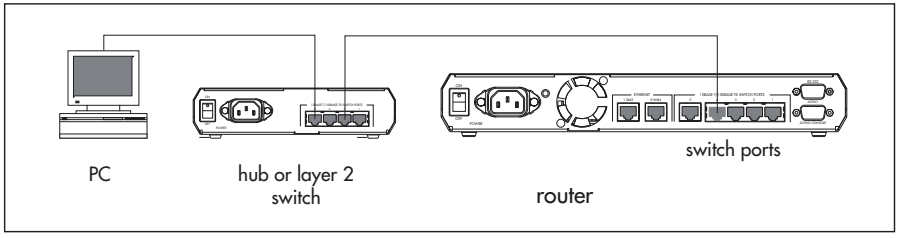
1. **Connect the PC to a router switch port.**

   The PC can be connected either directly or through your LAN.

   To connect the PC directly to the router, use a straight-through Ethernet cable to connect an Ethernet card on the PC to any one of the router's switch ports. Note the PC's IP address and mask.



   To connect via a LAN, use an Ethernet cable to connect the router's switch port(s) to the device(s) on the LAN. Connect AR410 and AR410S routers through port 4 and ensure that the PC/hub switch is pressed in. Select the LAN PC from which you wish to configure the router. The PC should be in the same subnet as the part of the LAN that contains the router (for example, the PC could be connected to a hub or Layer 2 switch that is directly connected to one of the router's switch ports). Note the PC's IP address and mask.



2. **Access the CLI on the router.**

   Follow the instructions in the previous section "Using the CLI to Configure AR410, AR410S, AR450S" on page 8.

3. **Enable IP.**

   In the CLI, enter the command:

   ```
   enable ip
   ```

4. **Assign an IP address to VLAN1.**

   Assign the VLAN1 interface an IP address in the subnet that the PC uses, using the command:

   ```
   add ip interface=vlan1 ip=ipaddress mask=mask
   ```

5. **Browse to the GUI.**

   If you access the Internet through a proxy server, set your browser to bypass the proxy for the IP address you assigned to the VLAN1 interface.

   Point your web browser at the IP address of the VLAN interface.

6. **Log in and set the password.**

   At the log in prompt, enter the log in name and password. Passwords are case sensitive.

   ```
   User Name: manager
   Password: friend
   ```

   The system status page appears and you can now use the GUI to configure the router.

   Important To ensure configuration settings are saved correctly, use the GUI menus and buttons to navigate, not your browser's buttons.

   ⚠ **Caution** As a security precaution, change the password as soon as possible.

   To change the password, select Management > Users from the sidebar menu. Select the Manager account and click Modify.

7. **Configure the router.**

   Use the GUI to continue configuring your router. To access context-sensitive help in the GUI, click on the Help button [Help]. The Help button is located at the top of the sidebar menu or on any popup page.

Connecting Data Cables to AR410, AR410S, AR450S

Connecting the router to your network:

1. **Connect to the LAN.**

   If you have not already done so, use straight-through Ethernet patch cables to connect the device(s) on your private network (LAN) to the router's switch port(s). By default, all switch ports are members of VLAN1.

2. **Connect to the DMZ port.**

   AR410, AR410S: If you have public servers to connect, connect them to switch ports in a different VLAN. For information about configuring VLANs, see the *Switching* chapter in the Software Reference.

   AR450S: If you have a public server to connect, use an Ethernet patch cable to connect it to the AR450S router's Ethernet DMZ (ETH1) port. Separating public servers from your LAN allows the firewall to provide greater protection for your LAN. If you have multiple public servers, you can connect them to a hub or Layer 2 switch and connect that device to the router's DMZ port.

3. **Connect to the WAN.**

   ⚠ **Caution** If you intend to use a firewall, configure it before you activate the WAN link.

   Once initial configuration is complete, connect the router to the WAN:

   - AR410, AR410S: Connect a PIC port to a WAN connection. See the *Port Interface Card Quick Install Guide* and *Hardware Reference*.
   - AR410, AR410S, AR450S: Use an Ethernet patch cable to connect the router's Ethernet WAN (ETH0) port to the Ethernet port of a WAN device (such as a modem).

System LEDs on AR410, AR410S, AR450S

The LEDs described in the following table show the operational status and port activity for the AR410, AR410S and AR450S routers.

LED	State	Function
Power	Green	The router is receiving power and the power switch is ON.
System	Red or Amber	Lit briefly during router start up, or the router is malfunctioning.
	Flashing	The fan has failed.
	Off	Normal operation.
PIC (AR410, AR410S)	Green	A port interface card (PIC) is correctly installed and has been detected by the router.
	Off	No PIC is installed, or the router has not recognised the PIC.
Full Dup	Green	The port is operating at full-duplex.
	Off	The port is operating at half-duplex.
Link/ACT	Green	A link has been established.
	Flashing	Data is being transmitted.
	Off	No link is present.
100M	Green	The port is operating at 100Mbps.
	Off	The port is operating at 10Mbps.

AR415S Router

This section describes how to install the AR415S router.

- "Installing the AR415S" below
- "Configuring the AR415S" on page 18
- "Connecting Data Cables to AR415S" on page 23
- "System LEDs on AR415S" on page 24

For corresponding information about installing an AR410, AR410S or AR450S, see "AR410, AR410S, AR450S Routers" on page 6.

For corresponding information about installing an AR440S, AR441S or AR442S, see "AR440S, AR441S, AR442S Routers" on page 25.

Installing the AR415S

Selecting a Site

You can install the router:

- on a level surface such as a desktop or bench
- in a standard 19-inch rack, using the rack-mount kit supplied with the router
- on a firm wall, using a wall-mount kit ordered from your authorised distributor or reseller

When you install the router, choose a site that:

- allows adequate airflow around the router and its vents
- is free of dust and moisture
- will maintain an ambient temperature in the range 0° C to 40° C (32° F to 104° F)
- will maintain a humidity in the range 5% to 80% non-condensing
- has a reliable and earthed (grounded) power supply, preferably dedicated and filtered
- does not expose cabling to sources of electrical noise such as radio transmitters, broadband amplifiers, power lines, electric motors, and fluorescent fixtures
- allows easy access to the router's power and cable connections

Before Installing the Router

- Read the safety information "Safety" on page 41.
- Unpack the router. Verify the package contents. If any items are damaged or missing, contact your sales representative.

Installing an Optional PIC

If you purchased an optional PIC, install it now by following the *Port Interface Card Quick Install Guide*. The PIC Quick Install Guide can be found with the PIC, on the Documentation and Tools CD-ROM, or can be downloaded from www.alliedtelesyn.com/support/software/.

Installing the Router in a Rack

1. Gather additional items. You will need:
   - the rack-mount kit (in your router package, or ordered from your authorised distributor or reseller)
   - a Phillips #1 screwdriver
   - screws and cage nuts to attach the brackets to your rack
2. Check the rack.

   Ensure that the rack is safely secured and that it will not tip over. Devices in a rack should be installed starting at the bottom, with the heavier devices near the bottom of the rack.

   Ensure the rack has sufficient space for the router and its associated cables. The router is 1U high.
3. Unscrew the feet from the router.
4. Connect the handles to the brackets.

   Screw the handles to the wider side of each bracket, using the supplied screws (see figure below).
5. Connect the brackets to the router.

   Screw the brackets to the sides of the router, using the supplied screws (see figure below). The router can be front or rear mounted.
6. Mount the router in the rack.

   Use appropriate rack mounting screws (not supplied).

Installing the Router on a Wall

You can install the router on a firm wall.

1. Gather additional items. You will need:
   - a wall mount bracket kit (ordered from your authorised distributor or reseller)
   - a Phillips #1 screwdriver
   - a Phillips #2 screwdriver
   - If you are fixing the router to a solid masonry or hollow wall, you need equipment to drill a 6 mm hole. The wall mount brackets are supplied with screws and plugs to fasten the brackets to a masonry or plasterboard wall. If you are fixing it to a wooden wall, the screws are self-tapping.
2. Screw the brackets to the router.

   Screw a wall mount bracket to the outer screw holes on each side of the router using the shorter M3 screws supplied.

   Screw the wall brackets to the wall with the brackets at the top and bottom and the feet against the wall.

Applying Power to the Router

1. Check the supply voltage and the router's rated voltage.

   AR400 Series routers are fitted with a universal mains power supply that will function over the range 100-240 VAC and 50–60Hz.

   For continued protection against the risk of fire and shock hazard, replace fuses only with the same type and rating.

   ⚠ **Warning** The specific power supply requirements for a particular model are clearly displayed on the rear or underside of the router. If the supply is outside the accepted range for the router, the router may not operate or damage to the router may result.

2. Fit the power cord retaining clip to the AC power inlet on the router's rear panel.

3. Connect the provided power cord to the AC power inlet and clip it in place. Switch the router's power switch to the ON position. The Power LED lights continuously and the System LED lights briefly. The Port LEDs also light briefly.

   The router is supplied with an approved power cord that incorporates a moulded plug. It must only be used with the power cord supplied.

If the LEDs fail to light, the most likely cause is that the router is not receiving power. Check that:

- the power supply outlet's switch (if any), and the router's power switch, are in the ON position
- the power cable is securely plugged in
- the power supply is operational

Configuring the AR415S

By default, the DHCP server on the router is enabled, and all the switch ports belong to the default VLAN (vlan1), which has an IP address of 192.168.1.1 ("Default Configuration on AR415S, AR440S, AR441S, AR442S" on page 37).

We recommend starting to configure the router using the graphical user interface (GUI), with its easy wizards. If necessary, you can then use the Command line interface (CLI) to complete your configuration.

- "Using the GUI to configure the AR415S" below
- "Using the CLI to configure the AR415S" on page 21

Using the GUI to configure the AR415S

This section describes how to access the GUI via a switch port in the default VLAN (vlan1) on the AR415S router, when the PC and the router are in the same subnet, in order to configure the router.

Caution Only one DHCP server should usually be enabled on a network. If you have an existing DHCP server, we recommend disabling either it or the router's DHCP server. To disable the router's DHCP server, use the command line to enter the command:

```
disable dhcp
```

If another device on your network already uses the router's default IP address, do not connect the router to the network until you have changed the IP address of the router's default VLAN (vlan1). Using the command line, enter the command:

```
set ip interface=vlan1 ip=ipaddress mask=mask
```

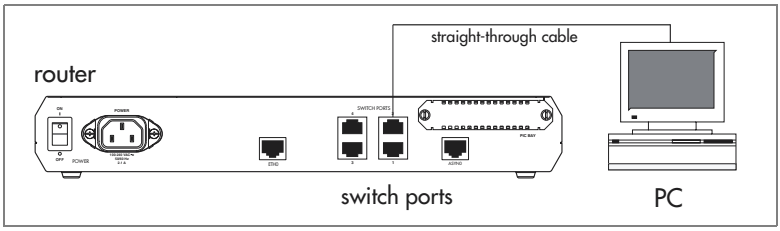
See the *Internet Protocol (IP)* chapter in the Software Reference.

The GUI requires a PC running a web browser. Supported browsers are Internet Explorer 5.0 or later and Netscape 6.2.2 or later, with JavaScript enabled. If you are using a toolbar or plug-in on your browser to block pop-ups, disable it while using the GUI. The GUI displays detailed configuration options and information in pop-up windows.

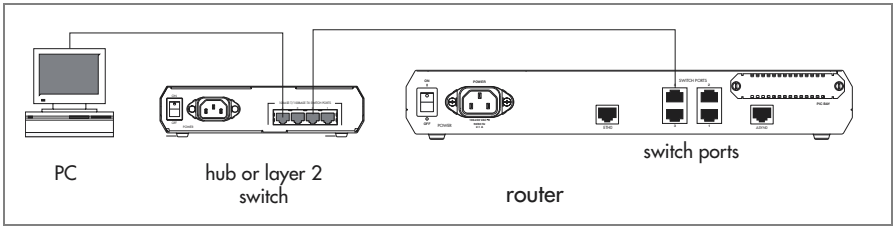
1. **Connect the PC to a router switch port.**

   The PC can be connected directly, or through your LAN.

   To connect the PC directly to the router, use a straight-through Ethernet cable to connect an Ethernet card on the PC to any one of the router's switch ports. See the following figure.



   To connect via a LAN, use an Ethernet cable to connect the router's switch port(s) to the device(s) on the LAN. Select the LAN PC from which you wish to configure the router. The PC should be in the same subnet as the part of the LAN that contains the router. For example, the PC could be connected to a hub or Layer 2 switch that is directly connected to one of the router's switch ports. See the following figure.



2. **Set PC to automatic IP address.**

   Set the PC to accept an IP address assigned to it by the router's DHCP server.

   In Windows XP:
   From the Start menu, select Control Panel > Network and Internet Connections > Network Connections. Select the connection, right-click and select Properties. In the connection Properties dialog box General tab, select Internet Protocol (TCP/IP), and click Properties. In the General tab, select Obtain an IP address automatically and Obtain a DNS server address automatically. Close all the dialog boxes you opened.

   In Windows 2000:
   From the Start menu, select Settings > Network and Dial-up Connections. In the Network and Dial-up Connections window, right click on the connection and select Properties. In the list of components, select Internet Protocol (TCP/

IP), and click Properties. In the Internet Protocol Properties dialog box, select Obtain an IP address automatically and Obtain a DNS server address automatically. Close all the dialog boxes you opened.

If these new IP address settings do not take effect immediately, you may need to restart the PC.

If you have disabled the router's DHCP server, assign the PC an IP address in the same subnet as the router. The router's default IP address is 192.168.1.1.

3. **Browse to the GUI.**

   If you access the Internet through a proxy server, set your browser to bypass the proxy for 192.168.1.1. Point your web browser to http://192.168.1.1.

4. **Log in.**

   At the log in prompt, enter the user name and password. Passwords are case sensitive. By default:

   ```
   User Name: manager
   Password: friend
   ```

   If this is the first time the router is configured, the Configuration Wizards page appears. Otherwise, you can open it using the Wizards menu option.

5. **Configure the router.**

   You can configure the router using the GUI wizards or menu.

   Important To ensure configuration settings are saved correctly, use the GUI menus and buttons to navigate, not your browser's buttons.

   ⚠ **Caution** As a security precaution, change the password as soon as possible. Remember the new password, as there is no way to retrieve it if it is lost.
   Use the wizard and other configuration menu options to configure the router. To change the 'manager' password, follow the basic setup wizard, or select Management > Users from the sidebar menu. Select the 'manager' user name and click Modify.

   To access context-sensitive help in the GUI, click on the Help button [Help]. The Help button is located at the top of the sidebar menu or on any popup page. For more information about the GUI, see the *Using the Graphical User Interface (GUI)* chapter in the Software Reference.

6. **Save the configuration.**

   The first time you start the router, it uses the default configuration in the file boot.cfg.

   Save your configuration to a new file, and set the router to use this file when it restarts. We strongly recommend leaving the boot.cfg file unchanged, in case you need to revert to the original default configuration. Some wizards save the configuration automatically. If your configuration is not saved yet, the Save button is red.

7. **Advanced configuration.**

   If necessary, use the command line to complete the configuration if necessary ("Using the CLI to configure the AR415S" below). Use the commands in the Software Reference.

Using the CLI to configure the AR415S

This section describes how to access the CLI via a switch port in VLAN1 on the AR415S routers, when the PC and the router are in the same subnet, in order to configure the router.

Caution Only one DHCP server should usually be enabled on a network. If you have an existing DHCP server, we recommend disabling either it or the router's DHCP server. To disable the router's DHCP server, use the command:

```
disable dhcp
```

If another device on your network already uses the router's default IP address, do not connect the router to the network until you have changed the IP address of the router's default VLAN. Using the command line, enter the command:

```
set ip interface=vlan1 ip=ipaddress mask=mask
```

See the *Internet Protocol (IP)* chapter in the Software Reference.

1. **Initiate router start-up.**

   Using the terminal cable supplied, connect a VT100-compatible terminal, or the COM port of a PC running a terminal emulation program such as Windows Hyper Terminal, to the Console RS-232 (ASYN0) port on the router's rear panel.

Set the communication parameters on your terminal or terminal emulation program to:

- Baud rate: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: Hardware

See the *AR400 Series Router Hardware Reference* for more information on configuring emulation software.

2. Log in and set the password.

The login prompt appears on the terminal or PC. If the login prompt does not appear, press [Enter] two or three times.

When the router boots for the first time it automatically creates an account with manager privileges. The account has the login name "manager" and the password is "friend". Passwords are case sensitive.

At the log in prompt, enter the login name and password.

```
Login: manager
Password: friend
```

The router's command prompt appears and you can now configure the router using the command line interface.

Warning Change the password as soon as possible. Leaving the manager account with the default password is a serious security risk. Make sure you remember the new password as there is no way to retrieve it if it is lost.

Use the following command to change the account password:

```
set password
```

3. Configure the router.

See the *AR400 Series Router Software Reference* for more information on router start-up and configuration procedures (including a list of message definitions). To continue configuring the router using the CLI, use the commands in the Software Reference.

To display a list of help topics, enter:

```
help
```

To display help on a specific topic, enter:

```
help topic
```

Alternatively, type a question mark (?) at the end of a partially completed command to see a list of valid options.

4. **Save the configuration.**

   Save your configuration to a new file, using the command:

   ```
   create config=filename.cfg
   ```

   and set the router to load this file when it restarts, using the command:

   ```
   set config=filename.cfg
   ```

   We recommend leaving the boot.cfg file unchanged, in case you need to revert to the original default configuration.

Connecting Data Cables to AR415S

Connecting the router to your network:

1. **Connect to the LAN**

   If you have not already done so, use straight-through Ethernet patch cables to connect the device(s) on your private network (LAN) to the router's switch port(s). By default, all switch ports are members of VLAN1.

2. **Connect to the WAN.**

   ⚠ **Caution** If you intend to use a firewall, configure it **before** you activate the WAN link.

   Once initial configuration is complete, connect the router to the WAN:

   - Connect a PIC port to a WAN connection. See the *Port Interface Card Quick Install Guide* and *Hardware Reference*.
   - Use an Ethernet patch cable to connect the router's Ethernet WAN (ETH0) port to the Ethernet port of a WAN device (such as a modem).

System LEDs on AR415S

The LEDs described in the following table show the operational status and port activity for the AR415S router.

LED	State	Function
PWR	Green	The router is receiving power and the power switch is ON.
SYS	Amber	Lit briefly during router start up, or the router is malfunctioning.
	Off	Normal operation.
PIC 0	Green	A port interface card (PIC) is correctly installed and has been detected by the router.
	Off	No PIC is installed, or the router has not recognised the PIC.
Full	Green	The link is in full-duplex mode.
	Off	The link is in half-duplex mode.
L/A	Green	A link has been established.
	Flashing	Data is being transmitted.
	Off	There is no link.
100M	Green	The link is at 100 Mbps speed.
	Off	The link is at 10 Mbps speed.

AR440S, AR441S, AR442S Routers

This section describes how to install the AR440S, AR441S and AR442S routers.

- "Installing the AR440S, AR441S, AR442S" below
- "Configuring the AR440S, AR441S, AR442S" on page 29
- "Connecting Data Cables to AR440S, AR441S, AR442S" on page 35
- "System LEDs on AR440S, AR441S, AR442S" on page 36

For corresponding information about installing an AR415S, see "AR415S Router" on page 14.

For corresponding information about installing an AR410, AR410S or AR450S, see "AR410, AR410S, AR450S Routers" on page 6.

Installing the AR440S, AR441S, AR442S

Selecting a Site

You can install the router:

- on a level surface such as a desktop or bench
- in a standard 19-inch rack, using the rack-mount kit supplied with the router
- on a firm wall, using a wall-mount kit ordered from your authorised distributor or reseller

When you install the router, choose a site that:

- allows adequate airflow around the router and its vents
- is free of dust and moisture
- AR440S, AR441S, AR442S: will maintain an ambient temperature in the range 0° C to 50° C (32° F to 122° F)
- will maintain a humidity in the range 5% to 80% non-condensing
- has a reliable and earthed (grounded) power supply, preferably dedicated and filtered
- does not expose cabling to sources of electrical noise such as radio transmitters, broadband amplifiers, power lines, electric motors, and fluorescent fixtures
- allows easy access to the router's power and cable connections

Before Installing the Router

- Read the safety information "Safety" on page 41.
- Unpack the router. Verify the package contents. If any items are damaged or missing, contact your sales representative.

Installing an Optional PIC

If you purchased an optional PIC, install it now by following the *Port Interface Card Quick Install Guide*. The PIC Quick Install Guide can be found with the PIC, on the Documentation and Tools CD-ROM, or can be downloaded from www.alliedtelesyn.com/support/software/.

Installing the Router in a Rack

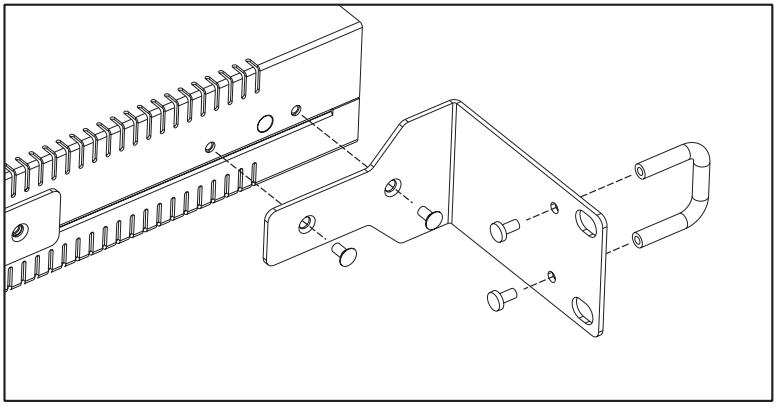
1. Gather additional items. You will need:
   - the rack-mount kit (in your router package, or ordered from your authorised distributor or reseller)
   - a Phillips #1 screwdriver
   - screws and cage nuts to attach the brackets to your rack
2. Check the rack.

   Ensure that the rack is safely secured and that it will not tip over. Devices in a rack should be installed starting at the bottom, with the heavier devices near the bottom of the rack.

   Ensure the rack has sufficient space for the router and its associated cables. The router is 1U high.
3. Unscrew the feet from the router.
4. Connect the handles to the brackets.

   Screw the handles to the wider side of each bracket, using the supplied screws (see figure below).
5. Connect the brackets to the router.

   Screw the brackets to the sides of the router, using the supplied screws (see figure below). The router can be front or rear mounted.



6. Mount the router in the rack.

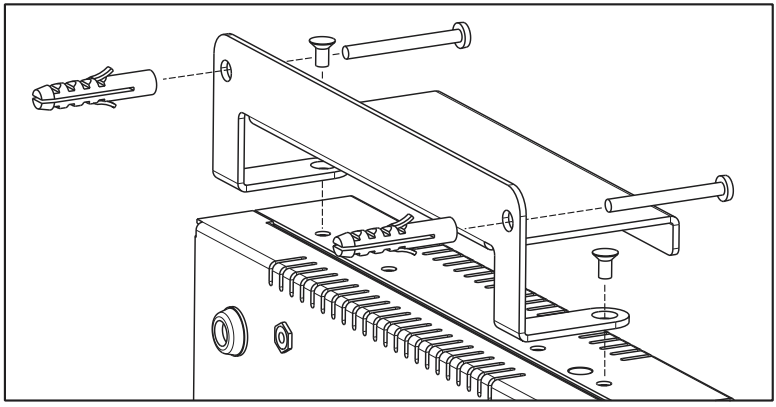
   Use appropriate rack mounting screws (not supplied).

Installing the Router on a Wall

You can install the router on a firm wall.

1. Gather additional items. You will need:
   - a wall mount bracket kit (ordered from your authorised distributor or reseller)
   - a Phillips #1 screwdriver
   - a Phillips #2 screwdriver
   - If you are fixing the router to a solid masonry or hollow wall, you need equipment to drill a 6 mm hole. The wall mount brackets are supplied with screws and plugs to fasten the brackets to a masonry or plasterboard wall. If you are fixing it to a wooden wall, the screws are self-tapping.
2. Screw the brackets to the router.

   Screw a wall mount bracket to the outer screw holes on each side of the router using the shorter M3 screws supplied.



   Screw the wall brackets to the wall with the brackets at the top and bottom and the feet against the wall.

Applying Power to the Router

1. Check the supply voltage and the router's rated voltage.

   AR400 Series routers are fitted with a universal mains power supply that will function over the range 100-240 VAC and 50–60Hz.

   For continued protection against the risk of fire and shock hazard, replace fuses only with the same type and rating.

   ⚠ **Warning** The specific power supply requirements for a particular model are clearly displayed on the rear or underside of the router. If the supply is outside the accepted range for the router, the router may not operate or damage to the router may result.

2. Fit the power cord retaining clip to the AC power inlet on the router's rear panel.
3. Connect the provided power cord to the AC power inlet and clip it in place. Switch the router's power switch to the ON position. The Power LED lights continuously and the System LED lights briefly. The Port LEDs also light briefly.

   The router is supplied with an approved power cord that incorporates a moulded plug. It must only be used with the power cord supplied.

If the LEDs fail to light, the most likely cause is that the router is not receiving power. Check that:

- the power supply outlet's switch (if any), and the router's power switch, are in the ON position
- the power cable is securely plugged in
- the power supply is operational

Configuring the AR440S, AR441S, AR442S

By default, the DHCP server on the router is enabled, and all the switch ports belong to the default VLAN (vlan1), which has an IP address of 192.168.1.1 ("Default Configuration on AR415S, AR440S, AR441S, AR442S" on page 37).

We recommend starting to configure the router using the graphical user interface (GUI), with its easy wizards. If necessary, you can then use the Command line interface (CLI) to complete your configuration.

- "Using the GUI to configure the AR415S" below
- "Using the CLI to configure the router" on page 33

Using the GUI to configure the router

This section describes how to access the GUI via a switch port in the default VLAN (vlan1) on the AR415S, AR440S, AR441S and AR442S routers, when the PC and the router are in the same subnet, in order to configure the router.

Caution Only one DHCP server should usually be enabled on a network. If you have an existing DHCP server, we recommend disabling either it or the router's DHCP server. To disable the router's DHCP server, use the command line to enter the command:

```
disable dhcp
```

If another device on your network already uses the router's default IP address, do not connect the router to the network until you have changed the IP address of the router's default VLAN (vlan1). Using the command line, enter the command:

```
set ip interface=vlan1 ip=ipaddress mask=mask
```

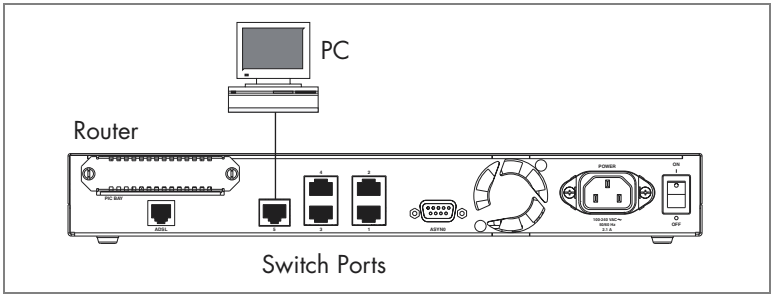
See the *Internet Protocol (IP)* chapter in the Software Reference.

The GUI requires a PC running a web browser. Supported browsers are Internet Explorer 5.0 or later and Netscape 6.2.2 or later, with JavaScript enabled. If you are using a toolbar or plug-in on your browser to block pop-ups, disable it while using the GUI. The GUI displays detailed configuration options and information in pop-up windows.

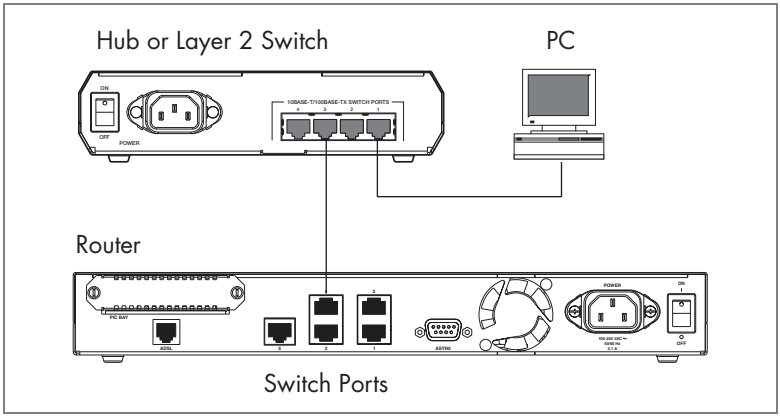
1. Connect the PC to a router switch port.

The PC can be connected directly, or through your LAN.

To connect the PC directly to the router, use a straight-through Ethernet cable to connect an Ethernet card on the PC to any one of the router's switch ports. See the following figure.



To connect via a LAN, use an Ethernet cable to connect the router's switch port(s) to the device(s) on the LAN. Select the LAN PC from which you wish to configure the router. The PC should be in the same subnet as the part of the LAN that contains the router. For example, the PC could be connected to a hub or Layer 2 switch that is directly connected to one of the router's switch ports. See the following figure.



2. **Set PC to automatic IP address.**

   Set the PC to accept an IP address assigned to it by the router's DHCP server.

   In Windows XP:
   From the Start menu, select Control Panel > Network and Internet Connections > Network Connections. Select the connection, right-click and select Properties. In the connection Properties dialog box General tab, select Internet Protocol (TCP/IP), and click Properties. In the General tab, select Obtain an IP address automatically and Obtain a DNS server address automatically. Close all the dialog boxes you opened.

   In Windows 2000:
   From the Start menu, select Settings > Network and Dial-up Connections. In the Network and Dial-up Connections window, right click on the connection and select Properties. In the list of components, select Internet Protocol (TCP/IP), and click Properties. In the Internet Protocol Properties dialog box, select Obtain an IP address automatically and Obtain a DNS server address automatically. Close all the dialog boxes you opened.

   If these new IP address settings do not take effect immediately, you may need to restart the PC.

   If you have disabled the router's DHCP server, assign the PC an IP address in the same subnet as the router. The router's default IP address is 192.168.1.1.

3. **Browse to the GUI.**

   If you access the Internet through a proxy server, set your browser to bypass the proxy for 192.168.1.1. Point your web browser to http://192.168.1.1.

4. **Log in.**

   At the log in prompt, enter the user name and password. Passwords are case sensitive. By default:

   `User Name:` **`manager`**

   `Password:` **`friend`**

   If this is the first time the router is configured, the Configuration Wizards page appears. Otherwise, you can open it using the Wizards menu option.

5. **Configure the router.**

   You can configure the router using the GUI wizards or menu.

   Important To ensure configuration settings are saved correctly, use the GUI menus and buttons to navigate, not your browser's buttons.

   Caution As a security precaution, change the password as soon as possible. Remember the new password, as there is no way to retrieve it if it is lost.
   Use the wizard and other configuration menu options to configure the router. To change the 'manager' password, follow the basic setup wizard, or select Management > Users from the sidebar menu. Select the 'manager' user name and click Modify.

   To access context-sensitive help in the GUI, click on the Help button [Help]. The Help button is located at the top of the sidebar menu or on any popup page. For more information about the GUI, see the *Using the Graphical User Interface (GUI)* chapter in the Software Reference.

6. **Save the configuration.**

   The first time you start the router, it uses the default configuration in the file boot.cfg.

   Save your configuration to a new file, and set the router to use this file when it restarts. We strongly recommend leaving the boot.cfg file unchanged, in case you need to revert to the original default configuration. Some wizards save the configuration automatically. If your configuration is not saved yet, the Save button is red.

7. **Advanced configuration.**

   If necessary, use the command line to complete the configuration if necessary ("Using the CLI to configure the router" on page 33). Use the commands in the Software Reference.

Using the CLI to configure the router

This section describes how to access the CLI via a switch port in VLAN1 on the AR440S, AR441S and AR442S routers, when the PC and the router are in the same subnet, in order to configure the router.

Caution Only one DHCP server should usually be enabled on a network. If you have an existing DHCP server, we recommend disabling either it or the router's DHCP server. To disable the router's DHCP server, use the command:

```
disable dhcp
```

If another device on your network already uses the router's default IP address, do not connect the router to the network until you have changed the IP address of the router's default VLAN. Using the command line, enter the command:

```
set ip interface=vlan1 ip=ipaddress mask=mask
```

See the *Internet Protocol (IP)* chapter in the Software Reference.

1. Initiate router start-up.

Using the terminal cable supplied, connect a VT100-compatible terminal, or the COM port of a PC running a terminal emulation program such as Windows Hyper Terminal, to the Console RS-232 (ASYN0) port on the router's rear panel.

Set the communication parameters on your terminal or terminal emulation program to:

- Baud rate: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: Hardware

See the *AR400 Series Router Hardware Reference* for more information on configuring emulation software.

2. Log in and set the password.

The login prompt appears on the terminal or PC. If the login prompt does not appear, press [Enter] two or three times.

When the router boots for the first time it automatically creates an account with manager privileges. The account has the login name "manager" and the password is "friend". Passwords are case sensitive.

At the log in prompt, enter the login name and password.

```
Login: manager
Password: friend
```

The router's command prompt appears and you can now configure the router using the command line interface.

Warning Change the password as soon as possible. Leaving the manager account with the default password is a serious security risk. Make sure you remember the new password as there is no way to retrieve it if it is lost.

Use the following command to change the account password:

```
set password
```

3. Configure the router.

See the *AR400 Series Router Software Reference* for more information on router start-up and configuration procedures (including a list of message definitions). To continue configuring the router using the CLI, use the commands in the Software Reference.

To display a list of help topics, enter:

```
help
```

To display help on a specific topic, enter:

```
help topic
```

Alternatively, type a question mark (?) at the end of a partially completed command to see a list of valid options.

4. Save the configuration.

Save your configuration to a new file, using the command:

```
create config=filename.cfg
```

and set the router to load this file when it restarts, using the command:

```
set config=filename.cfg
```

We recommend leaving the boot.cfg file unchanged, in case you need to revert to the original default configuration.

Connecting Data Cables to AR440S, AR441S, AR442S

Connecting the router to your network:

1. Connect to the LAN

If you have not already done so, use straight-through Ethernet patch cables to connect the device(s) on your private network (LAN) to the router's switch port(s). By default, all switch ports are members of VLAN1.

2. Connect to the WAN.

Caution If you intend to use a firewall, configure it **before** you activate the WAN link.

Once initial configuration is complete, connect the router to the WAN:

- AR440S, AR441S, AR442S: Connect a PIC port to a WAN connection. See the *Port Interface Card Quick Install Guide* and *Hardware Reference*.
- AR440S, AR441S: Using the DSL cable, connect the ADSL port to an ADSL splitter that is connected to a digital subscriber line.
- AR442S: Using the DSL cable, connect the SHDSL port to the digital subscriber line.

System LEDs on AR440S, AR441S, AR442S

The LEDs described in the following table show the operational status and port activity for the AR440S, AR441S and AR442S routers.

LED	State	Function
Power	Green	The router is receiving power and the power switch is ON.
System	Red or amber	Lit briefly during router start up, or the router is malfunctioning.
	Flashing	The fan has failed.
	Off	Normal operation.
PIC	Green	A port interface card (PIC) is correctly installed and has been detected by the router.
	Off	No PIC is installed, or the router has not recognised the PIC.
1 - 5 (switch ports)	Green	A 100 Mbps link has been established.
	Green flashing	Data is being transmitted at 100 Mbps.
	Amber	A 10 Mbps link has been established.
	Amber flashing	Data is being transmitted at 10 Mbps.
	Off	No link is present.
ADSL/ SHDSL	Green	A link has been established, and is ready to send or receive data.
	Green flashing fast	Data is being transmitted or received.
	Green flashing slow (1 sec)	The port is in Loopback mode.
	Amber	ADSL or SHDSL is enabled and is looking for DSL handshake tones (in the Handshake State).
	Amber flashing	The port is training.
	Green & amber alternate	There is a fault in the port.
	Off	The port is disabled.

Default Configuration on AR415S, AR440S, AR441S, AR442S

The default configuration file *boot.cfg* loads automatically when the router starts up. This file is stored in the router's flash memory. The AR415S, AR440S, AR441S and AR442S have the following default configuration:

```
#Default configuration file boot.cfg

# Set the command help file. (You may have a different help file.)
set help=54-275a.HLP

# Enable IP and assign an IP address to the default VLAN.
enable ip
add ip interface=vlan1 ip=192.168.1.1

# Enable the DHCP server, configure a range and a 3 day
# lease policy, and assign the router as a DNS server.
enable dhcp
create dhcp policy=lan-dhcp lease=259200
add dhcp policy=lan-dhcp subnet=255.255.255.0
add dhcp policy=lan-dhcp router=192.168.1.1
add dhcp policy=lan-dhcp dnsserver=192.168.1.1
cre dhcp range=standard poli=lan-dhcp ip=192.168.1.100 number=50

# Enable DNS relay, so that DNS will work for DHCP clients.
enable ip dnsrelay
```

The AR410, AR410S, AR450S boot.cfg files have no significant default configuration.

Documentation and Tools CD-ROM

The Documentation and Tools CD-ROM bundled with each router contains the complete Document Set for your router. The CD-ROM also includes tools for managing your router.

The Document Set on the CD-ROM includes:

- this Installation and Safety Guide
- the *AR400 Series Router Hardware Reference*, which provides detailed information on the hardware features of AR400 Series routers
- the *AR400 Series Router Software Reference*, which provides detailed information on configuring the router and its software
- the *Port Interface Card Quick Install Guide*, which provides instructions for installing a Port Interface Card in your router
- the *Port Interface Card Hardware Reference*, which provides detailed information on the hardware features of Port Interface Cards
- AT-TFTP Server for Windows, for downloading software releases
- Adobe Acrobat Reader, for viewing online documentation

Updates of these documents can also be downloaded from the AR400 Series Router Support Site from www.alliedtelesyn.com/support/software/.

Connection to mains voltage supply

This router is supplied with a power cord has been approved for use and incorporates a moulded plug. It must only be used with the power cord supplied.

For continued protection against the risk of fire and shock hazard, replace fuses only with the same type and rating.

Telecommunications Interfaces

⚠ **Warning** To reduce risk of fire, use only No.26 awg (0.4 mm) or larger telecommunications line cord if the cord supplied is not used with the apparatus.

Important Safety Instructions

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Do not use this product near water, for example near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
3. Do not use the telephone to report a gas leak while in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire: they may explode. Check with local codes for possible special disposal instructions.
5. Remove the telephone cord from the unit prior to making changes to the expansion port.

Save these instructions

Connection to ISDN network

This product is supplied with an approved patch cord for connection to the ISDN Basic Rate Network.

Ports for the connection of other apparatus

The following interfaces normally operate at Safe Extra Low Voltage (SELV) levels:

- asynchronous (console) ports
- Ethernet ports
- G703 ports
- synchronous ports

Note SELV is a secondary circuit whose voltages do not exceed a safe value under normal operating conditions and under single fault conditions. Under normal operating conditions the voltages do not exceed 42.4V peak a.c. or 60V d.c.

TNV1

The following interfaces are Telecommunications Network Voltage (TNV1) circuits, which operate normally within the limits of SELV:

- BRI ports for connection to ISDN Basic Rate telecommunications networks
- PRI ports for connection to ISDN Primary Rate telecommunications networks
- E1/T1 ports for connection to E1/T1 services

Note A TNV1 circuit is a circuit which under normal operating conditions does not exceed the limits for SELV and on which overvoltages from telecommunication networks are possible.

TNV3

The following interface is a Telecommunications Network Voltage (TNV3) circuit, which operates normally in excess of the limits of SELV:

- xDSL ports for connection to xDSL services

Note A TNV3 circuit is a circuit which under normal operating conditions exceed the limits for SELV and on which overvoltages from telecommunication networks are possible.

Safety

WARNING: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

ELECTRICAL NOTICES
WARNING: ELECTRIC SHOCK HAZARD
To prevent ELECTRIC shock, do not remove the cover. No user-serviceable parts inside. This unit contains HAZARDOUS VOLTAGES and should only be opened by a trained and qualified technician.

LIGHTNING DANGER
DANGER: DO NOT WORK on equipment or CABLES during periods of LIGHTNING ACTIVITY.

CAUTION: POWER CORD IS USED AS A DISCONNECTION DEVICE. TO DE-ENERGIZE EQUIPMENT, disconnect the power cord.

ELECTRICAL - TYPE CLASS I EQUIPMENT
THIS EQUIPMENT MUST BE EARTHED. Power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous validates on accessible metal parts.

PLUGGABLE EQUIPMENT, the socket outlet shall be installed near the equipment and shall be easily accessible.

CAUTION: Air vents must not be blocked and must have free access to the room ambient air for cooling.

OPERATING TEMPERATURE: AR410, AR410S, AR415S, AR450S: This product is designed for a maximum ambient temperature of 40° degrees C. AR440S, AR441S, AR442S: This product is designed for a maximum ambient temperature of 50° degrees C.

ALL COUNTRIES: Install product in accordance with local and National Electrical Codes.

ELECTRICAL - AC MAINS CIRCUIT OVERLOADING
When installing product, consideration must be given to the accumulative nameplate ratings when connecting the equipment to the AC supply wiring.

Lithium Battery - Should only be changed by authorised service personnel.
CAUTION: Danger of explosion if battery incorrectly replaced. Replace only with Lithium Battery, type CR2032, and dispose of in accordance with the manufacturer's recommendations and all local codes.

Sicherheit

WARNUNG: Bei Verwendung zu Hause kann dieses Produkt Funkstörungen hervorrufen. In diesem Fall müßte der Anwender angemessene Gegenmaßnahmen ergreifen.

ACHTUNG: GEFÄHRLICHE SPANNUNG
Das Gehäuse nicht öffnen. Das Gerät enthält keine vom Benutzer wartbaren Teile. Das Gerät steht unter Hochspannung und darf nur von qualifiziertem technischem Personal geöffnet werden.

GEFAHR DURCH BLITZSCHLAG
GEFAHR: Keine Arbeiten am Gerät oder an den Kabeln während eines Gewitters ausführen.

VORSICHT: DAS NETZKABEL DIENT ZUM TRENNEN DER STROMVERSORGUNG. ZUR TRENNUNG VOM NETZ, KABEL AUS DER STECKDOSE ZIEHEN.

GERÄTE DER KLASSE I
DIESE GERÄTE MÜSSEN GEERDET SEIN. Der Netzstecker darf nur mit einer vorschriftsmäßig geerdeten Steckdose verbunden werden. Ein unvorschriftsmäßiger Anschluß kann die Metallteile des Gehauses unter gefährliche elektrische Spannungen setzen.

STECKBARES GERÄT: Die Anschlußbuchse sollte in der Nähe der Einrichtung angebracht werden und leicht zugänglich sein.

VORSICHT
Die Entlüftungsöffnungen dürfen nicht versperrt sein und müssen zum Kühlen freien Zugang zur Raumluft haben.

BETRIEBSTEMPERATUR: AR410, AR410S, AR415S, AR450S: Dieses Produkt wurde für den Betrieb in einer Umgebungstemperatur von nicht mehr als 40° C entworfen. AR440S, AR441S, AR442S: Dieses Produkt wurde für den Betrieb in einer Umgebungstemperatur von nicht mehr als 50° C entworfen.

ALLE LÄNDER: Installation muß örtlichen und nationalen elektrischen Vorschriften entsprechen.

NETZSICHERUNG
Bei der Installation muß der auf dem Typenschild angezeigte Nennwert des Gerätes für den Anschluß an das Netz beachtet werden.

Lithium-Batterie - Sollte nur von einem geschulten qualifizierten Techniker ausgetauscht werden.
VORSICHT: Explosionsgefahr bei unsachgemäßem Austausch der Batterie. Nur mit einer gleichen Batterie oder einem gleichwertigen Batterietyp nach Empfehlung des Herstellers ersetzen. Gebrauchte Batterien nach Anweisungen des Herstellers beseitigen.

Maschinenlärminformations-Verordnung - 3. GPSGV, der höchste Schalldruckpegel beträgt 70dB(A) oder weniger gemäss EN ISO 7779.

Sikkerhed

ADVARSEL: I et hjemligt miljø kunne dette produkt forårsage radio forstyrrelse. Bliver det tilfældet, påkræves brugeren muligvis at tage tilstrækkelige foranstaltninger.

ELEKTRISKE FORHOLDSREGLER
ADVARSEL: RISIKO FOR ELEKTRISK STØD
For at forebygge ELEKTRISK stød, undlad at åbne apparatet. Der er ingen indre dele, der kan repareres af brugeren. Denne enhed indeholder LIVSFARLIGE STRØMSPÆNDINGER og bør kun åbnes af en uddannet og kvalificeret tekniker.

FARE UNDER UVEJR
FARE: UNDLAD at arbejde på udstyr eller KABLER i perioder med LYNAKTIVITET.

ADVARSEL: DEN STRØMFØRENDE LEDNING BRUGES TIL AT AFBRYDE STRØMMEN. SKAL STRØMMEN TIL APPARATET AFBRYDES, tages ledningen ud af stikket.

ELEKTRISK - KLASSE 1-UDSTYR
DETTE UDSTYR KRÆVER JORDFORBINDELSE. Stikket skal være forbundet med en korrekt installeret jordforbunden stikkontakt. En ukorrekt installeret stikkontakt kan sætte livsfarlig spænding til tilgængelige metaldele.

UDSTYR TIL STIKKONTAKT, stikkontakten bør installeres nær ved udstyret og skal være lettilgængelig.

ADVARSEL: Ventilationsåbninger må ikke blokeres og skal have fri adgang til den omgivende luft i rummet for afkøling.

BETJENINGSTEMPERATUR: AR410, AR410S, AR415S, AR450S: Dette apparat er konstrueret til en omgivende temperatur på maksimum 40 grader C.
AR440S, AR441S, AR442S: Dette apparat er konstrueret til en omgivende temperatur på maksimum 50 grader C.

ALLE LANDE: Installation af produktet skal ske i overensstemmelse med lokal og national lovgivning for elektriske installationer.

ELEKTRISK-OVERBELASTNING AF SPÆNDINGSKREDSLØBET
Ved installation af produktet, bør der tages hensyn til den kumulative kapacitet der angives på navneskiltet, når udstyret forbindes med vekselstrømsledningen.

Lithium batteri - Bør kun udskiftes af uddannet og kvalificeret tekniker.
ADVARSEL : Eksplosionsfare, hvis batteriet udskiftes ukorrekt. Udskift kun med samme eller en tilsvarende type der anbefales af producenten. Kassér brugte batterier i overensstemmelse med producentens instruktioner.

Veiligheid

WAARSCHUWING: Binnenshuis kan dit product radiostoring veroorzaken, in welk geval de gebruiker verplicht kan worden om gepaste maatregelen te nemen.

WAARSCHUWINGEN MET BETREKKING TOT ELEKTRICITEIT
WAARSCHUWING: GEVAAR VOOR ELEKTRISCHE SCHOKKEN
Verwijder het deksel niet, teneinde ELEKTRISCHE schokken te voorkomen. Binnenin bevinden zich geen onderdelen die door de gebruiker onderhouden kunnen worden. Dit toestel staat onder GEVAARLIJKE SPANNING en mag alleen worden geopend door een daartoe opgeleide en bevoegde technicus.

GEVAAR VOOR BLIKSEMINSLAG
GEVAAR: NIET aan toestellen of KABELS WERKEN bij BLIKSEM.

WAARSCHUWING: HET TOESTEL WORDT UITGESCHAKELD DOOR DE STROOMKABEL TE ONTKOPPELEN.OM HET TOESTEL STROOMLOOS TE MAKEN: de stroomkabel ontkoppelen.

ELEKTRISCHE TOESTELLEN VAN KLASSE I
DIT TOESTEL MOET GEAARD WORDEN. De stekker moet aangesloten zijn op een juist geaarde contactdoos. Een onjuist geaarde contactdoos kan de metalen onderdelen waarmee de gebruiker eventueel in aanraking komt onder gevaarlijke spanning stellen.

AAN TE SLUITEN APPARATUUR, de contactdoos wordt in de nabijheid van de apparatuur geïnstalleerd en is gemakkelijk te bereiken.

OPGELET: De ventilatiegaten mogen niet worden gesperd en moeten de omgevingslucht ongehinderd toelaten voor afkoeling.

BEDRIJFSTEMPERATUUR: AR410, AR410S, AR415S, AR450S: De omgeving-stemperatuur voor dit produkt mag niet meer bedragen dan 40 graden Celsius. AR440S, AR441S, AR442S: De omgevingstemperatuur voor dit produkt mag niet meer bedragen dan 50 graden Celsius.

ALLE LANDEN: het toestel installeren overeenkomstig de lokale en nationale elektrische voorschriften.

ELEKTRISCH: OVERBELASTING VAN WISSELSTROOM HOOFDCIRCUIT
Tijdens de installatie van het produkt dient men rekening te houden met de gecombineerde waarden op de naamplaatjes bij het aansluiten van het toestel op de wisselstroom-voedingsdraden.

Lithium batterij. Mag alleen worden vervangen door een daartoe opgeleide en bevoegde technicus.
OPGELET: Gevaar voor ontploffing indien de batterij verkeerd wordt vergangen. Alleen vervangen door hetzelfde of een gelijkwaardig, door de fabrikant aanbevolen type.

Sécurité

MISE EN GARDE : dans un environnement domestique, ce produit peut provoquer des interférences radioélectriques. Auquel cas, l'utilisateur devra prendre les mesures adéquates.

INFORMATION SUR LES RISQUES ÉLECTRIQUES
AVERTISSEMENT: DANGER D'ÉLECTROCUTION
Pour éviter toute ÉLECTROCUTION, ne pas ôter le revêtement protecteur du matériel. Ce matériel ne contient aucun élément réparable par l'utilisateur. Il comprend des TENSIONS DANGEREUSES et ne doit être ouvert que par un technicien dûment qualifié.

DANGER DE FOUDRE
DANGER: NE PAS MANIER le matériel ou les CÂBLES lors d'activité orageuse.

ATTENTION: LE CORDON D'ALIMENTATION SERT DE MISE HORS CIRCUIT. POUR COUPER L'ALIMENTATION DU MATÉRIEL, débrancher le cordon.

ÉQUIPEMENT DE CLASSE I ÉLECTRIQUE
CE MATÉRIEL DOIT ÊTRE MIS A LA TERRE. La prise de courant doit être branchée dans une prise femelle correctement mise à la terre car des tensions dangereuses risqueraient d'atteindre les pièces métalliques accessibles à l'utilisateur.

EQUIPEMENT POUR BRANCHEMENT ELECTRIQUE, la prise de sortie doit être placée près de l'équipement et facilement accessible".

ATTENTION: Ne pas bloquer les fentes d'aération, ceci empêcherait l'air ambiant de circuler librement pour le refroidissement.

TEMPÉRATURE DE FONCTIONNEMENT: AR410, AR410S, AR415S, AR450S: Ce matériel est capable de tolérer une température ambiante maximum de ou 40 degrés Celsius.
AR440S, AR441S, AR442S: Ce matériel est capable de tolérer une température ambiante maximum de ou 50 degrés Celsius.

POUR TOUS PAYS: Installer le matériel conformément aux normes électriques nationales et locales.

SURCHARGE DES CIRCUITS PRINCIPAUX DE COURANT ALTERNATIF ÉLECTRIQUE
Lors de l'installation du matériel, il faut prendre en compte la somme des puissances indiquées sur les étiquettes au moment de connecter le matériel à une source de courant alternatif.

Pile en Lithium-Doit uniquement être remplacée par un technicien dûment qualifié
ATTENTION : Un danger d'explosion existe en cas de remplacement incorrect de la pile. Remplacer uniquement avec une pile du même type ou d'un type recommandé par le fabricant. Mettre au rebut lespiles usagées conformément aux instructions du fabricant).

Turvallisuus

VAROITUS: Kotiolosuhteissa tämä laite voi aiheuttaa radioaaltojen häiröitä, missä tapauksessa laitteen käyttäjän on mahdollisesti ryhdyttävä tarpeellisiin toimenpiteisiin.

SÄHKÖÖN LIITTYVIÄ HUOMAUTUKSIA
VAROITUS: SÄHKÖISKUVAARA
Estääksesi SÄHKÖISKUN älä poista kantta. Sisällä ei ole käyttäjän huollettavissa olevia osia. Tämä laite sisältää VAARALLISIA JÄNNITTEITÄ ja sen voi avata vain koulutettu ja pätevä teknikko.

SALAMANISKUVAARA
HENGENVAARA: ÄLÄ TYÖSKENTELE laitteiden tai KAAPELEIDEN KANSSA SALAMOINNIN AIKANA.

HUOMAUTUS: VIRTAJOHTOA KÄYTETÄÄN VIRRANKATKAISULAITTEENA. VIRTA KATKAISTAAN irrottamalla virtajohto.

SÄHKÖ - TYYPPILUOKAN I LAITTEET
TÄMÄ LAITE TÄYTYY MAADOITTAA. Pistoke täytyy liittää kunnollisesti maadoitettuun pistorasiaan. Virheellisesti johdotettu pistorasia voi altistaa metalliosat vaarallisille jännitteille.

PISTORASIAAN KYTKETTÄVÄ LAITE; pistorasia on asennettava laitteen lähelle ja siihen on oltava esteetön pääsy.

HUOMAUTUS: Ilmavaihtoreikiä ei pidä tukkia ja niillä täytyy olla vapaa yhteys ympäröivään huoneilmaan, jotta ilmanvaihto tapahtuisi.

KÄYTTÖLÄMPÖTILA: AR410, AR410S, AR415S, AR450S: Tämä tuote on suunniteltu ympäröivän ilman maksimilämpötilalle 40°C.
AR440S, AR441S, AR442S: Tämä tuote on suunniteltu ympäröivän ilman maksimilämpötilalle 50°C.

KAIKKI MAAT: Asenna tuote paikallisten ja kansallisten sähköturvallisuusmääräysten mukaisesti.

SÄHKÖ-VAIHTORVIRTASÄHKÖPIIRIN YLIKUORMITUS
Tuotetta asennettaessa on otettava huomioon osien nimikilvissä osoitettu teho silloin kun osat liitetetään vaihtovirtaverkkoon.

Litiumparisto - Vaihdon voi suorittaa vain koulutettu ja pätevä teknikko.
Varoitus: Räjähdysvaara, jos paristo on vaihdettu väärin. Vaihda vain samaan tai vastaavaan tyyppiin, jota valmistaja suosittelee. Hävitä käytetyt paristot valmistajan ohjeiden mukaan.

Norme di Sicurezza

AVVERTENZA: in ambiente domestico questo prodotto potrebbe causare radio interferenza. In questo caso potrebbe richiedersi all'utente di prendere gli adeguati provvedimenti.

AVVERTENZE ELETTRICHE
ATTENZIONE: PERICOLO DI SCOSSE ELETTRICHE
Per evitare SCOSSE ELETTRICHE non asportare il coperchio. Le componenti interne non sono riparabili dall'utente. Questa unità ha TENSIONI PERICOLOSE e va aperta solamente da un tecnico specializzato e qualificato.

PERICOLO DI FULMINI
PERICOLO: NON LAVORARE sul dispositivo o sui CAVI durante PRECIPITAZIONI TEMPORALESCHE.

ATTENZIONE: IL CAVO DI ALIMENTAZIONE È USATO COME DISPOSITIVO DI DISATTIVAZIONE. PER TOGLIERE LA CORRENTE AL DISPOSITIVO staccare il cavo di alimentazione.

ELETTRICITÀ - DISPOSITIVI DI CLASSE I
QUESTO DISPOSITIVO DEVE AVERE LA MESSA A TERRA. La spina deve essere inserita in una presa di corrente specificamente dotata di messa a terra. Una presa non cablata in maniera corretta rischia di scaricare una tensione pericolosa su parti metalliche accessibili.

APPARECCHIATURA COLLEGABILE, la presa va installata vicino all'apparecchio per risultare facilmente accessibile.

ATTENZIONE: le prese d'aria non vanno ostruite e devono consentire il libero ricircolo dell'aria ambiente per il raffreddamento.

TEMPERATURA DI FUNZIONAMENTO: AR410, AR410S, AR415S, AR450S: Questo prodotto è concepito per una temperatura ambientale massima di 40 gradi centigradi.
AR440S, AR441S, AR442S: Questo prodotto è concepito per una temperatura ambientale massima di 50 gradi centigradi.

TUTTI I PAESI: installare il prodotto in conformità delle vigenti normative elettriche nazionali.

ELETTRICITÀ - SOVRACCARICO DEL CIRCUITO DI RETE A C.A.
Durante l'installazione ed il collegamento del dispositivo alla rete di alimentazione a corrente alternata, è necessario tenere in considerazione le capacità cumulative riportate sulla targhetta.

Batteria al litio - Va sostituita solo da un tecnico specializzato e qualificato.
ATTENZIONE: l'errata sostituzione della batteria può causare pericolo di esplosioni. Sostituire solamente con lo stesso tipo o con uno equivalente raccomandato dal produttore. Eliminare le batterie usate secondo le istruzioni del produttore.

Sikkerhet

ADVARSEL: Hvis dette produktet benyttes til privat bruk, kan produktet forårsake radioforstyrrelse. Hvis dette skjer, må brukeren ta de nødvendige forholdsregler.

ELEKTRISITET
ADVARSEL: FARE FOR ELEKTRISK SJOKK
For å unngå ELEKTRISK sjokk, må dekslet ikke tas av. Det finnes ingen deler som brukeren kan reparere på innsiden. Denne enheten inneholder FARLIGE SPENNINGER, og må kun åpnes av en faglig kvalifisert tekniker.

FARE FOR LYNNEDSLAG
FARE: ARBEID IKKE på utstyr eller KABLER i TORDENVÆR.

FORSIKTIG: STRØMLEDNINGEN BRUKES TIL Å FRAKOBLE UTSTYRET. FOR Å DEAKTIVISERE UTSTYRET, må strømforsyningen kobles fra.

ELEKTRISK - TYPE 1- KLASSE UTSTYR
DETTE UTSTYRET MÅ JORDES. Strømkontakten må være tilkoplet en korrekt jordet kontakt. En kontakt som ikke er korrekt jordet kan føre til farlig spenninger i lett t ilgjengelige metalldeler.

UTSTYR FOR STIKKONTAKT. Stikkontakten skal monteres i nærheten av utstyret og skal være lett tilgjengelig.

FORSIKTIG: Lufteventilene må ikke blokkeres, og må ha fri tilgang til luft med romtemperatur for avkjøling.

DRIFTSTEMPERATUR: AR410, AR410S, AR415S, AR450S: Dette produktet er konstruert for bruk i maksimum romtemperatur på 40 grader celsius.
AR440S, AR441S, AR442S: Dette produktet er konstruert for bruk i maksimum romtemperatur på 50 grader celsius.

ALLE LAND: Produktet må installeres i samsvar med de lokale og nasjonale elektriske koder.

ELEKTRISK OVERBELASTNING PÅ AC HOVEDKRETSLØP
Når produktet installeres, må de samlede navneplateverdiene kontrolleres nøye når strøm påsettes.

Litiumbatteri — Må kun byttes ut av en faglig kvalifisert tekniker.
FORSIKTIG: Eksplosjonsfare hvis batteriet feilinnsettes.Batteriet må bare erstattes med samme type eller en tilsvarende type som er anbefalt av fabrikanten. Batteriene må kasseres i samsvar med fabrikantens instruksjoner.

Segurança

AVISO: Num ambiente doméstico este produto pode causar interferência na radiorrecepção e, neste caso, pode ser necessário que o utente tome as medidas adequadas.

AVISOS SOBRE CARACTERÍSTICAS ELÉTRICAS
ATENÇÃO: PERIGO DE CHOQUE ELÉTRICO
Para evitar CHOQUE ELÉTRICO, não retire a tampa. Não contém peças que possam ser consertadas pelo usuário. Este aparelho contém VOLTAGENS PERIGOSAS e só deve ser aberto por um técnico qualificado e treinado.

PERIGO DE CHOQUE CAUSADO POR RAIO
PERIGO: NÃO TRABALHE no equipamento ou nos CABOS durante períodos suscetíveis a QUEDAS DE RAIO.

CUIDADO: O CABO DE ALIMENTAÇÃO É UTILIZADO COMO UM DISPOSITIVO DE DESCONEXÃO. PARA DESELETRIFICAR O EQUIPAMENTO, desconecte o cabo de ALIMENTAÇÃO.

ELÉTRICO - EQUIPAMENTOS DO TIPO CLASSE I
DEVE SER FEITA LIGAÇÃO DE FIO TERRA PARA ESTE EQUIPAMENTO. O plugue de alimentação deve ser conectado a uma tomada com adequada ligação de fio terra. Tomadas sem adequada ligação de fio terra podem transmitir voltagens perigosas a peças metálicas expostas.

EQUIPAMENTO DE LIGAÇÃO, a tomada eléctrica deve estar instalada perto do equipamento e ser de fácil acesso."

CUIDADO: As aberturas de ventilação não devem ser bloqueadas e devem ter acesso livre ao ar ambiente para arrefecimento adequado do aparelho.

TEMPERATURA DE FUNCIONAMENTO: AR410, AR410S, AR415S, AR450S: Este produto foi projetado para uma temperatura ambiente máxima de 40 graus centígrados. AR440S, AR441S, AR442S: Este produto foi projetado para uma temperatura ambiente máxima de 50 graus centígrados.

TODOS OS PAÍSES: Instale o produto de acordo com as normas nacionais e locais para instalações elétricas.

ELÉTRICO - SOBRECARGA DA REDE DE CORRENTE ALTERNADA (AC)
Antes de instalar o produto, verifique o efeito cumulativo da conexão de diversos aparelhos àrede de corrente alternada através das etiquetas que indicam potência ou amperagem.

Bateria de lítio - Só deve ser trocada por técnico qualificado e treinado.
CUIDADO: Se a bateria não for devidamente instalada há perigo de explosão. Substitua somente pelo mesmo tipo ou equivalente, conforme recomendado pelo fabricante. Descarte baterias usadas, de acordo com as instruções fornecidas pelo fabricante.

Seguridad

ADVERTENCIA: en un entorno doméstico, este producto puede causar radiointerferencias, en cuyo caso, puede requerirse del usuario que tome las medidas que sean convenientes al respecto.

AVISOS ELECTRICOS
ADVERTENCIA: PELIGRO DE ELECTROCHOQUE
Para evitar un ELECTROCHOQUE, no quite la tapa. No hay ningún componente en el interior al cual puede prestar servicio el usuario. Esta unidad contiene VOLTAJES PELIGROSOS y sólo deberá abrirla un técnico entrenado y calificado.

PELIGRO DE RAYOS
PELIGRO: NO REALICE NINGUN TIPO DE TRABAJO O CONEXION en los equipos o en LOS CABLES durante TORMENTAS ELECTRICAS.

ATENCION: EL CABLE DE ALIMENTACION SE USA COMO UN DISPOSITIVO DE DESCONEXION. PARA DESACTIVAR EL EQUIPO, desconecte el cable de alimentación.

ELECTRICO - EQUIPO DEL TIPO CLASE I
ESTE EQUIPO TIENE QUE TENER CONEXION A TIERRA. El cable tiene que conectarse a un enchufe a tierra debidamente instalado. Un enchufe que no está correctamente instalado podría ocasionar tensiones peligrosas en las partes metálicas que están expuestas.

EQUIPO CONECTABLE, el tomacorriente se debe instalar cerca del equipo, en un lugar con acceso fácil".

ATENCION: Las aberturas para ventilación no deberán bloquearse y deberán tener acceso libre al aire ambiental de la sala para su enfriamiento.

TEMPERATURA REQUERIDA PARA LA OPERACIÓN:
AR410, AR410S, AR415S, AR450S: Este producto está diseñado para una temperatura ambiental máxima de 40 grados C.
AR440S, AR441S, AR442S: Este producto está diseñado para una temperatura ambiental máxima de 50 grados C.

PARA TODOS LOS PAÍSES: Monte el producto de acuerdo con los Códigos Eléctricos locales y nacionales.

ELECTRICO - SOBRECARGA DEL CIRCUITO PRIMARIO DE CORRIENTE ALTERNA
Al instalarse el producto deberán considerarse las potencias nominales acumulativas, cuando se conecta el equipo al cable de alimentación de corriente alterna.

Batería de litio - Sólo deberá ser cambiada por un técnico entrenado y calificado.
ATENCION: Peligro de explosión si la batería no se reemplaza en forma correcta. Reemplace sólo con el mismo tipo o equivalente que recomienda el fabricante. Deseche las baterías usadas según las instrucciones del fabricante.

Säkerhet

VARNING: Denna produkt kan ge upphov till radiostörningar i hemmet, vilket kan tvinga användaren till att vidtaga erforderliga åtgärder.

TILLKÄNNAGIVANDEN BETRÄFFANDE ELEKTRICITETSRISK:
RISK FÖR ELEKTRISK STÖTFör att undvika ELEKTRISK stöt, ta ej av locket. Det finns inga delar inuti som behöver underhållas. Denna apparat är under HÖGSPÄNNING och får endast öppnas av en utbildad kvalificerad tekniker.

FARA FÖR BLIXTNEDSLAG
FARA: ARBETA EJ på utrustningen eller kablarna vid ÅSKVÄDER.

VARNING: NÄTKABELN ANVÄNDS SOM STRÖMBRYTARE FÖR ATT KOPPLA FRÅN STRÖMMEN, dra ur nätkabeln.

ELEKTRISKT - TYP KLASS I UTRUSTNING
DENNA UTRUSTNING MÅSTE VARA JORDAD. Nätkabeln måste vara ansluten till ett ordentligt jordat uttag. Ett felaktigt uttag kan göra att närliggande metalldelar utsätts för högspänning. Apparaten skall anslutas till jordat uttag, när den ansluts till ett nätverk.

UTRUSTNING MED PLUGG. Uttaget skall installeras i utrustningens närhet och vara lättåtkomligt".

VARNING: Luftventilerna får ej blockeras och måste ha fri tillgång till omgivande rumsluft för avsvalning.

DRIFTSTEMPERATUR: AR410, AR410S, AR415S, AR450S: Denna produkt är konstruerad för rumstemperatur ej överstigande 40 grader Celsius.
AR440S, AR441S, AR442S: Denna produkt är konstruerad för rumstemperatur ej överstigande 50 grader Celsius.

ALLA LÄNDER: Installera produkten i enlighet med lokala och statliga bestämmelser för elektrisk utrustning.

ELEKTRISKT - ÖVERBELASTNING AV VÄXELSTRÖMSNÄTET: När produkten installeras bör den sammanlagda effekten på namnplåten beaktas när apparaten ansluts till växelströmsnätet.

Litium batteri - Får endast bytas av utbildade och kvalificerade tekniker.
VARNING: Risk för explosion om felaktigt batteri används. Byt endast mot samma eller likvärdig typ batteri, rekommenderat av tillverkaren. Kassera använda batterier i enlighet med tillverkarens instruktioner.

US Federal Communications Commission (FCC)

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the underside of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

For the AR021U PIC	
Facility Interface Code	021S5
Service Order Code	6.0Y The AR021U PIC has completed the ISDN Ordering Codes Translation Review and is registered for IOC S and EZ-ISDN 1.
USOC Jack Type	RJ49C
For the AR440S and AR442S routers	
USOC Jack Type	RJ11C

Should you experience trouble with this telephone equipment, please contact:
ALLIED TELESIS INC.
19800 NORTH CREEK PARKWAY #200
BOTHELL
WASHINGTON 98011
TEL: 425 487 8880
FAX: 425 489 9191

If trouble is experienced with this equipment (AR021U PIC, AR440S, AR442S), for repair or warranty information, please contact the above. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

This equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs.

Your telephone company may discontinue your service if your equipment causes harm to the telephone network. They will notify you in advance of disconnection, if possible. During notification, you will be informed of your right to file a complaint to the FCC.

Occasionally, your telephone company may make changes in its facilities, equipment, operation, or procedures that could affect the operation of your equipment. If so, you will be given advance notice of the change to give you an opportunity to maintain uninterrupted service.

Canadian Department of Communications

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

⚠ **Warning** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

This digital apparatus does not exceed the limits for radio noise emissions from digital apparatus as set out in the Radio Interface Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

Emission Compliance Statements

STANDARDS: The AR410, AR410S, AR415S, AR440S, AR441S, and AR442S meet the following standards:

Category	Approval Agency and Requirement
Safety	UL60950-1 EN60950-1 AS/NZS 60950
Electromagnetic Compliance	FCC CFR47 Part 15 Class A EN55022 Class A VCCI Class A AS/NZS CISPR22 Class A
Immunity	EN55024
Network Interface (where applicable)	ISDN Limited Network Protocol Analysis FCC Part 68, Subpart D IC CS-03, Issue 8, Part I and IV TBR3 TBR4 TR048 TIA-968-A PTC 270 G.992.1 Annex A (AR440S only) G.992.1 Annex B (AR441S only) G.991.2 (AR442S only)

U.S. Federal Communications Commission

RADIATED ENERGY

Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Note: Modifications or changes not expressly approved by the manufacturer or the FCC can void your right to operate this equipment.

Canadian Department of Communications

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

STANDARDS: The AR450S meets the following standards:

Category	Approval Agency and Requirement
Safety	UL60950 EN60950 AS/NZS 3260
Electromagnetic Compliance	FCC CFR47 Part 15 Class B EN55022 Class B VCCI Class B AS/NZS CISPR22 Class B
Immunity	EN55024

U.S. Federal Communications Commission

RADIATED ENERGY

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses, generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between the equipment and the receiver.
- Connect equipment to an outlet on a circuit different from the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Note: Modifications or changes not expressly approved by the manufacturer or the FCC can void your right to operate this equipment.

Canadian Department of Communications

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

EC Declaration of Conformity

We: **ALLIED TELESIS LABS LIMITED**
27 NAZARETH AVENUE
CHRISTCHURCH 8002
NEW ZEALAND

Declare under our sole legal responsibility that the following product meets the safety, protection and conformity requirements of council directives 1999/5/EC, 89/336/EEC and 73/23/EEC, as amended by directive 93/68/EEC, on the approximation of the laws of member states relating to electromagnetic compatibility, electrical safety and the mutual recognition of conformity of telecommunications terminal equipment.

AR400 SERIES ROUTERS

to which this declaration relates are in conformity with the following relevant harmonized standards, the reference numbers of which have been published in the Official journal of the European community.

EN55022: 1998	Information Technology Equipment—Radio disturbance
EN55024: 1998	Information Technology Equipment—Immunity characteristics—Limits and methods of measurement.
EN60950: 2000	AR450S: Safety of Information Technology Equipment, including electrical business equipment.
EN60950-1: 2001	AR410, AR410S, AR415S, AR440S, AR441S, AR442S: Information Technology Equipment including electrical business equipment—General Requirements.

Name: John Shields
On behalf of the Manufacturer

Position:
Managing Director

Signature:

Date: 9 March 2006